



STRONGER, CLEARER, MORE DURABLE

DuPont™ SentryGlas® Plus is the architectural glass interlayer  
for a new generation of building design and protection.

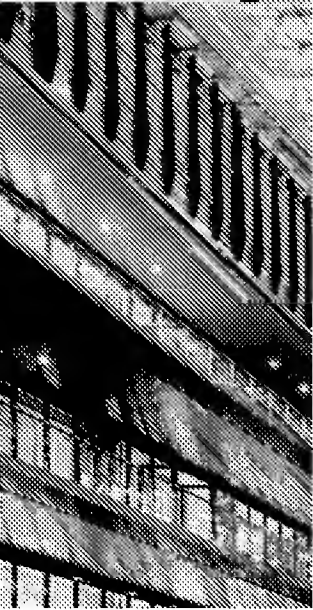
## DuPont™ SentryGlas® Plus

ARCHITECTURAL SAFETY GLASS INTERLAYER



*The miracles of science™*

## DuPont™ SentryGlas® Plus is changing the way glass performs



Originally created for specialty markets such as high-security glazing and hurricane windows, DuPont™ SentryGlas® Plus glass laminating interlayers now are being specified wherever engineers need a material that can make a difference in glass performance.

Stronger than conventional laminating materials, SentryGlas® Plus interlayers help create safety glass that protects against bigger storms, larger impacts, and more powerful blasts. They become an engineered component within the glass, holding more weight, so the glass can serve as a more active structural element in the building envelope. And they do all of this while increasing framing system design freedom and improving long-term weather resistance.

This latest advance from DuPont puts materials science to work in a new era of building innovation. DuPont™ SentryGlas® Plus helps meet the needs of a global society faced with increasing building security challenges and growing concern about health, safety and sustainability. It helps architects do more with less, create innovative new spaces, and provide greater protection for building occupants.

This brochure will guide you through a few of the ways you can put this new material to work in your next building design project.



SentryGlas® Plus Installation: Stadium, Philadelphia

### **Enables Stronger Glass For Structural Applications**

SentryGlas® Plus is 100 times stiffer and 5 times stronger than traditional interlayers, helping thinner laminates meet specified wind loads or structural requirements. In stairs, flooring and overhead glazing, laminated glass made with SentryGlas® Plus acts like an engineered composite, with low mechanical strain under loads, and outstanding post-breakage resistance to creep and collapse.

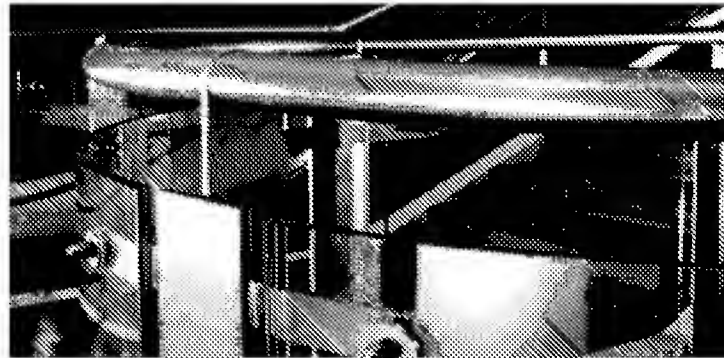
Because it enables wider use of glass, SentryGlas® Plus helps architects contribute to building health, safety and maintenance ease. Structural glass can create new, easy-to-clean, long-lasting nonporous surfaces with reduced opportunity for bacterial or mold growth. And using glass in new ways can help draw natural, health-inducing daylight into new building spaces.

### **Bolted And Frameless Glass**

Laminated glass made with new, stiffer SentryGlas® Plus can tolerate high stress loads. The interlayer becomes a higher performing structural layer in the multilayer composite. This gives architects and framing system engineers greater design freedom, useful in creating innovative new bolted and point-supported systems. Clean, smooth, expansive façades can now be engineered with minimal metal exposure and reduced need for four-sided edge framing.

### **A New Era For Exposed Edges**

Gone are the days when laminated safety glass needed to be edge-framed partly to hide potential edge defects after weathering. With SentryGlas® Plus, edge stability numbers (ESNs) continue to be zero at all known installations...including 7-year test panels exposed to severe Florida heat and humidity. Compared with many commonly used interlayers, the advanced DuPont polymer used in the SentryGlas® Plus interlayer is less susceptible to moisture intrusion or other weathering effects.



SentryGlas® Plus Installation: Stair Rail



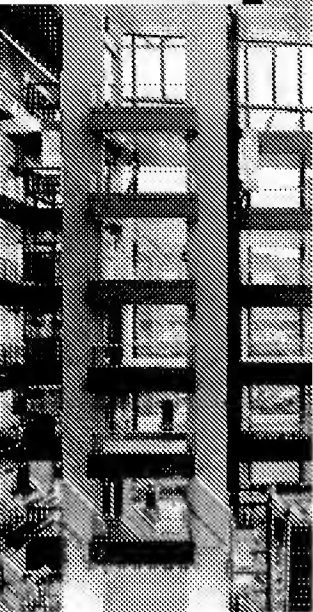
SentryGlas® Plus Installation: Overhead Glazing

### **Butt Joined Freedom, Too**

In testing with widely used silicone sealants, butt-joined panels of laminated glass made with SentryGlas® Plus interlayers show excellent compatibility, remaining free of clouding or other edge defects after years of weather exposure and inspection. Butt-joined exterior safety glass glazing made with SentryGlas® Plus and installed in buildings around the world continues to show outstanding reliability and freedom from edge defects.



## DuPont™ SentryGlas® Plus is changing the way glass performs



### Effortless, Full-time Protection

#### ***Permanent protection, with a view...***

that's how homeowners in hurricane- and cyclone-prone areas describe the carefree storm-preparedness of safety glass windows made with DuPont™ SentryGlas® Plus. With no need for shutters, their windows provide full-time protection against wind-borne debris, the leading cause of window failure and property loss. And unlike owners who rely on shutters, owners of homes protected by SentryGlas® Plus don't have to be there to deploy their safety system. Whether they're home or not, their protection is on duty, guarding their investment in accordance with the world's most demanding building codes. (It guards against burglaries and break-ins, too.)

Because SentryGlas® Plus is stiffer and tougher than conventional interlayers, it can withstand greater impacts (stronger winds and larger objects) in materials-conserving thin glazing installations. It also can be used in larger panes of storm-protected glazing, increasing the vision area and reducing framing material and installation labor.

The extra stiffness of SentryGlas® Plus also helps create a flatter glazing surface, with low post-installation warpage. And it helps the glass withstand greater wind forces, even when dry-glazed which can save labor and material costs. In post-breakage wind cycle testing required for tough new building codes, hurricane glass made with SentryGlas® Plus lasts longer and maintains building protection long after alternative laminated safety glass has failed and opened the building interior to wind, rain, and the potential devastating effects of over-pressure.



#### ***Permanent protection, with a view...***

that's how homeowners in hurricane- and cyclone-prone areas describe the carefree storm-preparedness of safety glass windows made with DuPont™ SentryGlas® Plus

### Let's Make Something Perfectly Clear

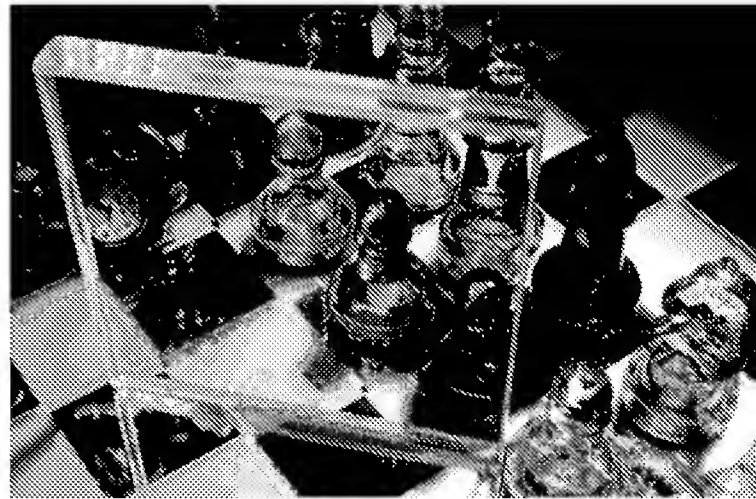
For all its strength, DuPont™ SentryGlas® Plus comes with a surprising bonus property: outstanding clarity.

SentryGlas® Plus not only starts clear, it also stays clear. Its Yellowness Index (YI) starts at 1.5 and lower (versus 6 to 12 for conventional interlayers), and SentryGlas® Plus keeps its newborn clarity after years of service.

That means clearer or more color-predictable laminated glass, consistent with the color of the glass selected for the laminate. And, with SentryGlas® Plus, the clarity is permanent; it won't turn yellow over time. Not only does the interlayer remain clear, there are also no adhesives, other laminating aids or plasticizers to worry about inside the composite.



SentryGlas® Plus installation: Residence, Florida



SentryGlas® Plus not only starts clear, it also stays clear.

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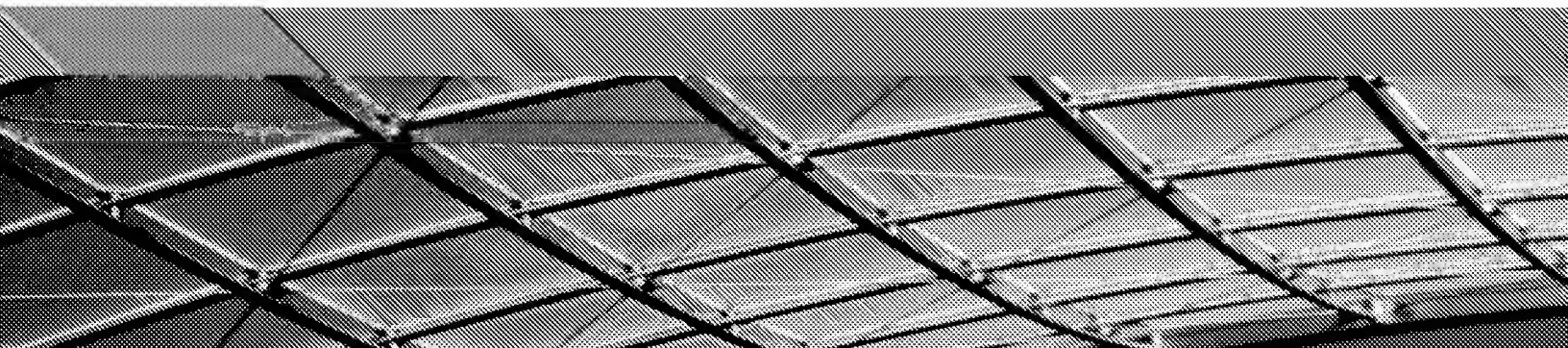
SentryGlas® Plus installation: Greenhouse, Barcelona

### Low-iron, Ultra-clear Safety Glazing

Because of its outstanding clarity, SentryGlas® Plus lets architects and designers realize their ultimate visions in low-iron safety glass. For the first time, designers can specify low-iron, laminated safety glass... and get the full clarity they were looking for.

*DuPont imagines many ways this new clarity will be used, including:*

- ♦ more natural office and public space daylighting
- ♦ retail fashion displays and other commercial storefronts
- ♦ glass for retail jewelry display cases
- ♦ windows for ocean views and other scenic locations
- ♦ skylights and other overhead glazing
- ♦ clearer high-security glazing
- ♦ glazing for nature centers and conservatories
- ♦ color-free windows for art and photographic studios







SentryGlas® Plus Installation: Hospital, Florida



SentryGlas® Plus Installation: Courthouse, Arizona

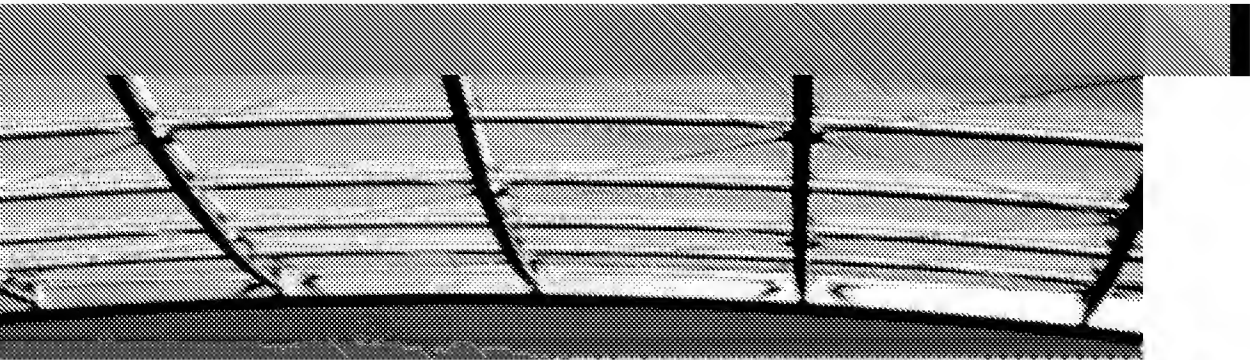
### Available From Leading Laminators And Glazing System Installers

Glass laminators familiar with the manufacture of high-performance glass are available worldwide to meet the needs of architects and system designers specifying DuPont™ SentryGlas® Plus.

Laminating procedures for SentryGlas® Plus are similar to those for more conventional materials. Differences in handling and processing of SentryGlas® Plus relate mainly to its supplied form (cut sheets instead of wound rolls) and the fact that SentryGlas® Plus doesn't need refrigerated storage.

SentryGlas® Plus can be laminated using existing manufacturing lines and equipment.

Property	Units Metric (English)	Value	ASTM Test
Young's Modulus	MPa (kpsi)	300 (43.5)	D5026
Tensile Strength	MPa (kpsi)	34.5 (5.0)	D638
Elongation	%	400	D638
Density	g/cm³ (lb/in³)	0.95 (0.0343)	D792
Flex Modulus 23°C (78°F)	MPa (kpsi)	345 (50)	D790
Heat Deflection Temperature at 0.46 MPa	°C (°F)	43 (110)	D648
Coefficient of Thermal Expansion (-20°C to 32°C)	—	10-15 x 10 <sup>-5</sup> /C°	D696



## DuPont™ SentryGlas® Plus

ARCHITECTURAL SAFETY GLASS INTERLAYER

### Worldwide DuPont Sales and Support

DuPont Glass Laminating Solutions supplies and supports customers from research, manufacturing and sales locations worldwide.

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*The technical data contained herein are guides to the use of DuPont materials. The advice contained herein is based upon tests and information believed to be reliable; but users should not rely upon it absolutely for specific applications because performance properties will vary with processing conditions. It is given and accepted at user's risk and confirmation of its validity and suitability in particular cases should be obtained independently. The DuPont Company makes no guarantees of results and assumes no obligations or liability in connection with its advice. This publication is not to be taken as a license to operate under, or recommendation to infringe, any patents.*

**CAUTION:** Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see DuPont Medical Caution Statement, H-50102.

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**The miracles of science™**